

Remarks

Claims 1-31 are pending in the application. By this Amendment, claims 30 and 31 are added.

Applicants thank Examiner Walls for recognizing allowable subject matter in claims 25, 26 and 28.

In the Office Action, claims 1-29 were rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-29 of U.S. Patent No. 6,176,970 to Staton in view of U.S. Patent No. 3,557,589 to Schwarz. The rejection is respectfully traversed.

The Office Action asserts that it would have been obvious to combine the sloped sides of basin 5 of Schwarz with the vessel disclosed in the Staton patent. Applicants respectfully disagree with this assertion. Schwarz discloses a basin 5 in which a ring-shaped charge 2 is positioned inside a hollow cylinder workpiece 3. The explosion from the ring-shaped charge 2 expands the workpiece 3 in order to provide a larger cylindrical workpiece. It is respectfully submitted that Schwarz does not disclose any function of the sloped sides of basin 5. Further, Applicants submit that subjecting the workpiece 3 to "a portion of the explosive forces reflecting off of an interior surface of the lower portion of the vessel" (as claimed in claim 1 of the application) would be detrimental to the purpose of Schwarz because such reflected forces would hinder the expansion of workpiece 3. Further still, it is respectfully submitted that the Office

Action's reference to page 3 of the instant specification introduces impermissible hindsight based on Applicants' disclosure into the motivation to combine the angled sides of Schwarz with the Staton patent.

In light of the above, it is respectfully submitted that there would have been no motivation to combine the angled sides of Schwarz with the vessel of the Staton patent. Therefore, it is respectfully requested that the rejection be withdrawn.

In the Office Action, claims 1-5, 13-15, 27 and 29 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,228,221 to Zernow in view of U.S. Patent No. 3,557,589 to Schwarz (it is believed that the listing of 6,176,970 being the patent number of Schwarz is a typographical error and, therefore, the rejection is responded to as being based on Zernow '221 in view of Schwarz '589). The rejection is respectfully traversed.

Claim 1 includes the feature of an interior cross-sectional shape of a lower portion of the vessel being such that the material is subjected to a portion of the explosive forces reflected off of an interior surface of the lower portion of the vessel.

Zernow discloses an apparatus that subjects a metal plate 32 to explosive forces on only one side. In Zernow, the metal plate 32 is laid over a female die 33 and is sealed thereon by sealing material 35a to prevent the entrance of the water or other liquid in the container into the interior of the female die (col. 3, lines 17-22, Figs. 1 and 2c). In addition, the interior of the female die 33 is evacuated by means of the evacuation pipe 43 which is connected to a vacuum

pump to permit the impact of the shockwave on the metal blank to force the metal blank into the die (col. 3, lines 22-26). From this description of Zernow, it is apparent that the addition of any structure that would result in explosive forces reflecting off an interior surface of the lower portion of the vessel would be detrimental to the purpose of the Zernow apparatus. As a result, it is respectfully submitted that there would have been no motivation to combine the sloped walls of basin 5 of Schwarz with the apparatus of Zernow. Further, even if the lower portion of the container 12 of Zernow were modified to include sloped walls, any explosive forces reflecting off the sloped walls would not act on the metal plate 32 because the structure 33, 34, 35a would prevent such reflected forces from contacting the metal plate 32.

Further still, neither Zernow nor Schwarz discloses subjecting a workpiece to explosive forces reflected off an interior surface of a vessel. The Office Action's reference to page 7 of the instant specification indicates the use of impermissible hindsight in formulating the motivation to combine the sloped sides of Schwarz with the container of Zernow.

In light of the above, it is respectfully submitted that there would have been no motivation to combine the sloped sides of Schwarz with the container of Zernow. As a result, it is respectfully requested that the rejection be withdrawn.

In the Office Action, claim 6 was rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,228,221 to Zernow in view of U.S. Patent No. 3,557,589 to Schwarz, and further in view of U.S. Patent No. 3,461,698 to Bennett. The rejection is respectfully traversed.

As discussed above, it is respectfully submitted that the combination of Zernow and Schwarz does not suggest the features of claim 1. Further, as Bennett does not remedy the deficiencies of the combination of Zernow and Schwarz, it is respectfully submitted that the combination of Zernow, Schwarz and Bennett does not suggest the features of claim 6. As a result, it is respectfully requested that the rejection be withdrawn.

In the Office Action, claims 7 and 8 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,228,221 to Zernow in view of U.S. Patent No. 3,557,589 to Schwarz, and further in view of U.S. Patent No. 3,068,822 to Orr and U.S. Patent No. 3,248,917 to Herring. The rejection is respectfully traversed.

As discussed above, it is respectfully submitted that the combination of Zernow and Schwarz does not suggest the features of claim 1. Further, as neither Orr, Herring or the combination thereof remedies the deficiencies of the combination of Zernow and Schwarz, it is respectfully submitted that the combination of Zernow, Schwarz, Orr and Herring does not suggest the features of claims 7 and 8. As a result, it is respectfully requested that the rejection be withdrawn.

In the Office Action, claims 9, 10 and 12 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,228,221 to Zernow in view of U.S. Patent No. 3,557,589 to Schwarz, and further in view of U.S. Patent No. 3,464,249 to Klein. The rejection is respectfully traversed.

As discussed above, it is respectfully submitted that the combination of Zernow and Schwarz does not suggest the features of claim 1. Further, as Klein does not remedy the deficiencies of the combination of Zernow and Schwarz, it is respectfully submitted that the combination of Zernow, Schwarz and Klein does not suggest the features of claims 9, 10 and 12. As a result, it is respectfully requested that the rejection be withdrawn.

In the Office Action, claim 11 was rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,228,221 to Zernow in view of U.S. Patent No. 3,557,589 to Schwarz, and further in view of U.S. Patent No. 4,174,624 to Shrum. The rejection is respectfully traversed.

As discussed above, it is respectfully submitted that the combination of Zernow and Schwarz does not suggest the features of claim 1. Further, as Shrum does not remedy the deficiencies of the combination of Zernow and Schwarz, it is respectfully submitted that the combination of Zernow, Schwarz and Shrum does not suggest the features of claim 11. As a result, it is respectfully requested that the rejection be withdrawn.

In the Office Action, claims 16, 17, 45 and 46 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,228,221 to Zernow in view of U.S. Patent No. 3,557,589 to Schwarz, and further in view of U.S. Patent No. 3,603,127 to Seiffert or U.S. Patent No. 5,843,535 to Dobson. The rejection is respectfully traversed.

As discussed above, it is respectfully submitted that the combination of Zernow and Schwarz does not suggest the features of claim 1. Further, as neither Seiffert nor Dobson

remedies the deficiencies of the combination of Zernow and Schwarz, it is respectfully submitted that the combination of Zernow, Schwarz and Seiffert or Dobson does not suggest the features of claims 16, 17, 45 and 46. As a result, it is respectfully requested that the rejection be withdrawn.

In the Office Action, claims 18 and 47 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,228,221 to Zernow in view of U.S. Patent No. 3,557,589 to Schwarz, U.S. Patent No. 3,603,127 to Seiffert or U.S. Patent No. 5,843,535 to Dobson, and further in view of U.S. Patent No. 3,461,698 to Bennett. The rejection is respectfully traversed.

As discussed above, it is respectfully submitted that the combination of Zernow and Schwarz does not suggest the features of claim 1. Further, as neither Seiffert, Dobson, Bennett nor any combination thereof remedies the deficiencies of the combination of Zernow and Schwarz, it is respectfully submitted that the combination of Zernow, Schwarz, Seiffert or Dobson and Bennett does not suggest the features of claims 18 and 47. As a result, it is respectfully requested that the rejection be withdrawn.

In the Office Action, claims 19-24 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 3,228,221 to Zernow in view of U.S. Patent No. 3,557,589 to Schwarz. The rejection is respectfully traversed.

As discussed above, it is respectfully submitted that the combination of Zernow and Schwarz does not suggest the features of claim 1. Accordingly, it is respectfully submitted that

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the combination of Zernow and Schwarz does not suggest the features of claims 19-24. As a result, it is respectfully requested that the rejection be withdrawn.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are respectfully requested.

If the examiner believes that anything additional would place the application in even better condition for allowance, the examiner is requested to contact the undersigned attorney.

It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are needed to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims), and any other fee deficiency are hereby authorized to be charged, and any overpayments credited to, our Deposit Account No. 22-0261.

Respectfully submitted,

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